

**Amendments to the Claims:**

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A holographic multiplex recording method for multiplex-recording information as a hologram on a holographic recording ~~medium using interference fringes of~~medium, the method comprising:  
splitting a laser beam into an object beam and a reference beam, into which a laser beam is split, beam by a polarizing beam splitter;  
modulating an incident angle of the reference beam relative to the holographic recording medium;  
modulating the object beam with data in the form of intensity modulation in a spatial light modulator;  
projecting the object beam and the reference beam in the holographic recording medium to intersect each other and to produce optical interference in a region where both the beams intersect each other; and  
recording the optical interference as diffraction gratings on the holographic recording medium,  
~~wherein in a process of~~wherein, when multiplex-recording the information, a time of exposure to the laser beam per data page is kept constant, and a laser output power of the laser beam is increased in accordance with a decrease in recording sensitivity of the holographic recording medium.
2. (Withdrawn) A holographic multiplex recording method for multiplex-recording information as a hologram on a holographic recording medium using interference fringes of an object beam and a reference beam, into which a laser beam is split, wherein

in a process of multiplex-recording the information, a time of exposure to the laser beam per data page and a laser output power are kept constant, and a spatial light modulator having a plurality of pixels for intensity modulating of the object beam is used to increase the number of pixels of the spatial light modulator to be allocated to one bit of the information in accordance with a decrease in recording sensitivity of the holographic recording medium.

3. (Withdrawn) The holographic multiplex recording method according to claim 2, wherein an array of pixels of the spatial light modulator to be allocated to one bit of the information is formed in a square grid shape.

4. (Withdrawn) The holographic multiplex recording method according to claim 2, wherein, when a recording sensitivity of the holographic recording medium is reduced to less than or equal to  $1/N^2$  ( $N$  is an integer equal to two or greater) of an initial value of the recording sensitivity, the number of pixels of the spatial light modulator to be allocated to one bit of the information is increased to  $N^2$ .

5. (Currently Amended) A holographic recording apparatus for multiplex-recording information as a hologram on a holographic recording medium using interference fringes of an object beam and a reference beam, into which a laser beam is split, wherein ~~in a process of~~when multiplex-recording the information, a time of exposure to the laser beam per data page is kept constant, and a laser output power of the laser beam can be increased in accordance with a decrease in recording sensitivity of the holographic recording medium.

6. (Withdrawn) A holographic recording apparatus for multiplex-recording information as a hologram on a holographic recording medium using interference fringes of an object beam and a reference beam, into which a laser beam is split,

includes a spatial light modulator having a plurality of pixels for intensity modulating of the object beam, and

wherein in a process of multiplex-recording the information, a time of exposure to the laser beam per data page and a laser output power are kept constant, and the number of pixels of the spatial light modulator to be allocated to one bit of the information is set to increase in accordance with a decrease in recording sensitivity of the holographic recording medium.

7. (Withdrawn) The holographic recording apparatus according to claim 6, wherein an array of pixels of the spatial light modulator to be allocated to one bit of the information is formed in a square grid shape.

8. (Withdrawn) The holographic recording method according to claim 6, wherein the number of pixels of the spatial light modulator to be allocated to one bit of the information is set to increase to  $N^2$  when a recording sensitivity of the holographic recording medium is reduced to less than or equal to  $1/N^2$  ( $N$  is an integer equal to two or greater) of an initial value of the recording sensitivity.

9. (Withdrawn) A holographic recording medium on which information is multiplex recorded as a hologram using interference fringes of an object beam and a reference beam, into which a laser beam is split, wherein

a time of exposure to the laser beam and a laser output power are kept constant, and a spatial light modulator having a plurality of pixels for intensity modulation of the object beam is used to increase the number of pixels of the spatial light modulator to be allocated to one bit of the information in accordance with a decrease in recording sensitivity of the holographic recording medium, thereby allowing the information to be multiplex-recorded.

10. (Withdrawn) The holographic recording medium according to claim 9, wherein an array of pixels of the spatial light modulator to be allocated to one bit of the information is formed in a square grid shape, thereby allowing the information to be multiplex-recorded.

11. (Withdrawn) The holographic recording medium according to claim 9, wherein, when a recording sensitivity of the holographic recording medium is reduced to less than or equal to  $1/N^2$  ( $N$  is an integer equal to two or greater) of an initial value of the recording sensitivity, the number of pixels of the spatial light modulator to be allocated to one bit of the information is increased to  $N^2$ , thereby allowing the information to be multiplex-recorded.

12. (Withdrawn) The holographic multiplex recording method according to claim 3, wherein, when a recording sensitivity of the holographic recording medium is reduced to less than or equal to  $1/N^2$  ( $N$  is an integer equal to two or greater) of an initial value of the recording sensitivity, the number of pixels of the spatial light modulator to be allocated to one bit of the information is increased to  $N^2$ .

13. (Withdrawn) The holographic recording method according to claim 7, wherein the number of pixels of the spatial light modulator to be allocated to one bit of the information is set to increase to  $N^2$  when a recording sensitivity of the holographic recording medium is reduced to less than or equal to  $1/N^2$  ( $N$  is an integer equal to two or greater) of an initial value of the recording sensitivity.

14. (Withdrawn) The holographic recording medium according to claim 10, wherein, when a recording sensitivity of the holographic recording medium is reduced to less than or equal to  $1/N^2$  ( $N$  is an integer equal to two or greater) of an initial value of the recording sensitivity, the number of pixels of the spatial light modulator to be allocated to one

bit of the information is increased to  $N^2$ , thereby allowing the information to be multiplex-recorded.